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LIST OF CRYPTOGAMS COLLECTED IN THE BAHAMAS, JAMAICA AND GRAND CAYMAN.

BY ALBERT S. HITCHCOCK.

The flowering plants and ferns of this collection, made by me during the winter of 1890–91, for the Missouri Botanical Garden, were listed in the Fourth Report of the Garden,* to which the reader is referred for an account of the trip, the localities visited, and other necessary information. The cryptogams were collected incidentally, hence the list is meager in numbers, yet it seems of sufficient interest to present for publication. The specimens were all sent to specialists, whose reports are here brought together, and upon whom rests the responsibility for determination, citation and notes in each case.

LYCOPODINEAE.

(PROF. L. M. UNDERWOOD.)

LYCOPODIUM CERNUUM L. Sp. Pl. 1103. 1753.
Blue Mts. 1000–3500 ft.

LYCOPODIUM CLAVATUM L. Sp. Pl. 1101. 1753.
Blue Mt. Peak.

LYCOPODIUM COMPLANATUM L. Sp. Pl. 1104. 1753. Var.
Blue Mt. Peak.

SELAGINELLA PATULA (Swz.) Spring, Monogr. **2**: 97. 1848.
Port Antonio.

SELAGINELLA SERPENS (Desv.) Spring, Monogr. **2**: 102. 1848.
Port Antonio; Bog Walk; Lucea.

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* Rept. Mo. Bot. Gard. **4**: 47–179. *pl. 11–14.*

HEPATICAE.

(PROF. L. M. UNDERWOOD.)

DUMORTIERA HIRSUTA (Swz.) R. B. N. Nova Acta Acad. Caes. **12**: 410. 1825.

Blue Mt. Peak.

MARCHANTIA CHENOPODA L. Sp. Pl. 1137. 1753.

Bog Walk; Port Antonio.

PALLAVICINIA LYELLII (Hook.) S. F. Gray, Nat. Arr. Br. Pl. 1: 685, 775. 1821.

Blue Mt. Peak.

CALOBRYUM MNIOIDES (Gottsche) Schiffn. Nova Acta der Ksl. Leop. Carol. Deutschen Akad. der Naturf. **60**: 270. 1893.

Blue Mt. Peak.

CHARACEAE.

(DR. T. F. ALLEN.)

CHARA GYMNOPUS MICHAUXII A. Br.

Inagua.

ASCOLICHENES.

(PROF. T. A. WILLIAMS.)

RAMALINA USNEOIDES (Ach.) Fr. Lich. Eur. 1831. *Parmelia* Ach. Meth. Lich. 1803.

Grand Cayman.

RAMALINA USNEOIDES USNEOIDELLA Nyl. Recog. Ramal. 1870.

Grand Cayman.

RAMALINA DENTICULATA (Eschw.) Nyl. Recog. Ramal. 1870. *Parmelia* Eschw. in Mart. Fl. Bras. 1833.

Crooked Island.

USNEA BARBATA (L.) Ach.? Meth. Lich. 1803. *Lichen* L. Sp. Pl. 1753.

Grand Cayman?

Sterile. The plant has the aspect of certain forms of *U. barbata* looking toward *U. ceratina* but differs somewhat structurally as well as in various external characters.

PARMELIA PERLATA (L.) Ach. Meth. Lich. 1803. *Lichen* L. Syst. Nat. [ed. 12]. 1767.

Crooked Island.

This plant differs from the commoner forms of the species in the more abundant spermogones, somewhat wrinkled thallus and rather larger spores.

STICTA AURATA (Sm.) Ach. Meth. Lich. 1803. *Lichen* Sm. Eng. Bot.

Constant Springs.

STICTA WEIGELII (Ach.) Wainio, Lich. Bres. 1890. *S. damaecornis β. Weigelii* Ach. Lich. Univ. 1810. *S. quercizans* Tuckerm. Syn. N. A. Lich. 98. 1882.

Constant Springs.

Sterile and fragmentary, hence the determination is somewhat doubtful.

STICTA DAMAECORNIS (Sw.) Ach. Meth. Lich. 1803. *Lichen* Sw. Prod. Fl. Ind. 1788.

Blue Mt. Peak; Constant Springs.

The last named specimen is sterile and fragmentary and hence somewhat doubtful. That from Blue Mt. Peak is in fruit and gives spores which are fuscescent, or decolorate, quite persistently bilocular, but at length 4-locular, measuring 22–33 μ long by 6–8 wide.

STICTA SYLVATICA (L.) Ach. Meth. Lich. 1803. *Lichen* L. Sp. Pl. 1753.

Constant Springs.

STICTA FULIGINOSA (Dicks.) Ach. Meth. Lich. 1803. *Lichen* Dicks. Crypt. Fasc. 1785.

Constant Springs.

A single fragmentary specimen of a form with the under surface white and densely villous.

ERIODERMA WRIGHTII Tuckerm. Suppl. 1858

Constant Springs.

HEPPIA sp.

Fortune Island.

PANNARIA RUBIGINOSA (Thunb.) Delis. Dict. Class. Hist. Nat. 1828. *Lichen* Thunb. Prodr. Fl. Cap. 1794.

Constant Springs.

Sterile and fragmentary.

LEPTOGIUM TREMELLOIDES (L. fil.) Wainio, Lich. Bres. 1890. *Lichen* L. fil. Syst. Veg. Suppl. 1781. *Lichen azureus* Sw. Fl. Ind. Occ. 1806.—Fide Wainio l. c.

Port Antonio.

LECANORA FLAVOVIRENS SUBAERUGINOSA (Nyl.) Wainio, Lich. Bres. 1890. *L. granifera* var. *subaeruginosa* Nyl. Lich. Nov. Granat. 1863.

Port Antonio.

Growing on dead wood. Thallus whitish straw-colored, on a more or less distinct, bluish-black hypothallus. Spores slightly smaller than those described by Nylander, but the specimen is still rather immature.

THELOTREMA sp.

Fortune Island.

STEREOCAULON RAMULOSUM (Sw.) Ach. Meth. Lich. 1803. *Lichen* Sw. Prod. Fl. Ind. 1788.

Blue Mts.?

CLADONIA FIMBRIATA (L.) Fr. Lich. Eur. 1831. *Lichen* L. Sp. Pl. 1753.

Blue Mts.?

CLADONIA DACTYLOTA Tuckerm. Suppl. 2. 1859.

Blue Mts.

One of the specimens is near the var. *symphycarpia*.

CLADONIA RANGIFERINA (L.) Hoffm. Deutsch. Fl. 1795.—*Lichen* L. Sp. Pl. 1753.

Constant Springs.

CLADONIA DIDYMA MUSCIGENA (Eschw.?) Wainio, Mon. Clad. Univ. 1887. *Cladonia muscigena* Eschw.? in Mart. Flor. Bras. 1833.

Blue Mts.

CLADONIA DIDYMA VULCANICA (Zolling.) Wainio, Mon. Clad. Univ. 1887. *Cladonia vulcanica* Zolling. in Hasskarli Natur- et Geneeskundig Archief voor Neërlands Indie. 1. 1847.—Fide Wainio, l. c.

Blue Mts?

The podetia are more densely squamulose than the type as described by Wainio, and the squamules are rather larger.

BUELLIA PARASEMA (Ach.) Th. Fr. Lich. Scand. 1874. *Lecidea* Ach. Lich. Univ. 1810. In part.

Fortune Island.

BUELLIA AERUGINASCENS (Nyl.) Tuckerm. in herb. *Lecidea disciformis* var. *aeruginascens* Nyl. Add. Fl. Chil. 1855.

With the preceding.

GRAPHIS TORTUOSA Ach. Syn. Lich. 1814.

Crooked Island.

Spores rather smaller than the average for this species.

TRYPETHELIUM CRUENTUM Mont. Ann. Sc. Nat., Bot. ii. 8. 1837.

Crooked Island.

TRYPETHELIUM MASTOIDEUM Ach. Lich. Univ. 1810.

Constant Springs.

The apothecia are scarcely typical but the specimens agree with this species otherwise.

TRYPETHELIUM ELEUTERIAE Spreng. Anl. z. Kenntn. Gewächs. 1804. *T. Sprengelii* Ach. Lich. Univ. 1810.

Crooked Island.

BASIDIOLICHENES.

(DR. W. G. FARLOW.)

DICHONEMA SERICEUM (Sw.) Mont.

Constant Springs.

BASIDIOMYCETES.

(DR. W. G. FARLOW.)

DIPLOCYSTIS WRIGHTII B. & C.

Inagua.

POLYSTICTUS SANGUINEUS (L.) Fr.

Inagua.

POLYSTICTUS MEMBRANACEUS (Sw.) Berk.

Port Antonio.

TRAMETES sp.

Inagua.

I do not see how this differs from *Trametes Pini* Fr.

TRAMETES FIMBRIOSA Fr.

Port Antonio.

PODAXON sp.

Port Royal.

UREDINEAE.

(MR. M. A. CARLETON.)

UROMYCES EUPHORBIAE Cooke & Peck, Rep. State Bot. N. Y. **25**: 90. 1873.

On leaves of *Euphorbia heterophylla* L. Fortune Island. Nov. 1890.

Only uredospores present in these specimens.

PUCCINIA LATERIPES Berk. & Rav. Grevillea **3** : 52. 1874.

On leaves of *Ruellia clandestina* L. Streets of Kingston. Dec. 9, 1890.

PUCCINIA GILBERTII Spegazz. Ann. Soc. Cient. Argent. **10**: 8. 1880.

On leaves of *Hyptis suaveolens* (L.) Poit. Constant Springs, Jamaica. Dec. 10, 1890.

Only uredospores present in this collection.

PUCCINIA EMACULATA Schwein. Trans. Amer. Phil. Soc. **4**: 295. 1831.

On leaves of *Panicum brevifolium* L. Port Antonio, Jamaica. Dec. 1890.

PUCCINIA HETEROSPORA Berk. & Curt. Journ. Linn. Soc. **10**: 356. 1869.

On leaves of *Abutilon crispum* (L.) Don. Fortune Isl. 1890.

Mesospores greatly predominate.

PUCCINIA ARECHAVALETAE Spegazz. Ann. Soc. Cient. Argent. **11**: 22. 1881.

On leaves of *Cardiospermum Halicacabum* L. Lucea, Jamaica. Jan. 1891.

The author says, concerning this species, in the description above cited: "Species sporis valde ludentibus, et inter *Uromycetem* et *Pucciniam* nutans, ac vere inter duo genera intermedia." The specimens of this collection show a great majority of mesospores (?). But it is a question whether these should really be called mesospores, and whether the species may not be a *Uromyces* rather than a *Puccinia*. At times the same question would seem to apply almost equally as well, also, to the above species, *P. heterospora*. It is simply another instance among many, showing the uncertainty of purely morphological characters, alone, as a basis of classification.

PUCCINIA SPERMACOCIS Berk. & Curt. Grevillea **3**: 53. 1874.

On leaves of *Spermacoce aspera* Aubl. Lucea, Jamaica, Jan. 3, 1891. On *Ernodia littoralis* Sw. Nassau. Nov. 9, 1890.

PUCCINIA XANTHII Schwein. Trans. Amer. Phil. Soc. **4**: 296. 1831.

On leaves of *Struchium Sparganophorum* (L.) OK. Streets of Kingston. Dec. 9, 1890.

PUCCINIA LANTANAE Farl. Proc. Amer. Acad. Arts & Sci. **18** (n. s. **10**): 83. 1883.

On leaves of *Abena Jamaicensis* (L.) Hitchc. Nassau, Bahamas. Nov. 9, 1890.

A comparison with type specimens, kindly sent me by Dr. Farlow, shows only a slight difference in the appearance of the sori, with a less number of mesospores in Prof. Hitchcock's specimens.

AECIDIUM CESTRI Mont. Ann. Sci. Nat. ii. **3**: 356. 1835.

On leaves of *Solanum torvum* Sw. Port Morant, Jamaica. Dec. 20, 1890.

This may be a new species, but the description of Montagne's species applies so well to these specimens, that I deem it safest, in the absence of type specimens for comparison, to use his name. The species is especially interesting in exhibiting such highly sculptured imbricated pseudoperidial cells.

AECIDIUM CISSI Wint. Hedwigia **23**: 168. 1884.

On leaves of *Cissus sicyoides* L. Port Morant, Jamaica. Dec. 20, 1890.

It is a matter of some interest to note the number of the above species of *Uredineae* that are of South American range.

USTILAGINEAE.

(DR. P. MAGNUS.)

MYKOSYRINX CISSI G. Beck. Ann. Hofmus. Wien. **9**: 123. 1894.

On *Cissus sicyoides* L. Port Morant.

PYRENOMYCETES.

(MR. J. B. ELLIS.)

PERISPORIUM WRIGHTII B. & C.
On *Opuntia Tuna* (L.) Mill. Inagua.

PHYLLACHORA OXALINA. E. & E. N. A. P. 602
On *Oxalis corniculata* L. Nassau.

PARODIELLA GRAMMODES (Kze.) Cke.
On *Crotalaria retusa* L. Lucea.

CERCOSPORA MELOCHIAE Carleton in litt.
On *Melochia tomentosa* L. Eleuthera.

MELIOLA SIMILLIMA E. & E. n. sp.
On *Echites Brownei* J. Müll. Nassau. Dec. 1890.

Mycelium branched, radiating, forming patches 2-4 mm. diam. or larger by confluence. Threads about 5 μ diam. with alternate hyphopodia. Capitate hyphopodia narrowed below, ovate, faintly uniseptate, 15 × 8–10 μ. Mucronate hyphopodia flask-shaped, about 15 × 6–7 μ, paler brown. Bristles arising from the mycelium, simple, straight or a little curved, 150–200 × 5–6 μ, septate, soon opake. Perithecia globose, rough, 100–115 μ diam. Asci ovate, 30 × 20 μ, 2-spored; paraphyses none. Sporidia cylindrical, obtuse and rounded at the ends, 4-septate and slightly constricted at the septa, 24–28 × 10–12 μ.

This comes near *M. microspora* Pat. and Guill., but that has stouter bristles, coarser subcrustose mycelium and smaller sporidia, and is found on a different order of plants.

SPHAERELLA RAJANIAE E. & E. n. sp.
On leaves of *Rajania hastata* L. Nassau. Nov. 1890.

Perithecia hypophyllous, gregarious in small groups, not on very decided spots, about ¼ mm. diam., subcuticular, black, subcollapsing, the minute, papilliform ostiolum barely piercing the blackened epidermis. Asci oblong-cylindrical, sessile, 60–65 × 8–10 μ, obscurely paraphysate, 8-spored. Sporidia biseriate, oblong-fusoid, hyaline, faintly uniseptate, 18–20 × 4–5 μ.

PHYLLOSTICTA COCCOLOBAE E. & E. n. sp.
On leaves of *Coccoloba uvifera* (L.) Jacq. Nassau. Nov. 1890.

Spots amphigenous, orbicular, 3–5 mm. diam., purplish-red, with a slightly raised, darker colored border, outside of which is a narrow, paler, shaded margin, bordered with an appressed, coarse, light colored fringe. Perithecia innate, mostly hypophyllous, minute, invisible without a lens. Sporules narrow-elliptical, or subfusoid, hyaline, 5–6 × 2½ μ.

SEPTORIA sp.

On *Plumeria obtusa* L. Crooked Island. Nov. 1890.

Spots orbicular, zonate, light brown, 3–6 mm. diam., with a narrow slightly raised border. Perithecia scattered on the spots, epiphyllous, innate with the apex prominent, small, 100–120 μ diam. Sporules strongly curved, continuous, nucleolate, 12–20 × 1–1¼ μ.

RAMULARIA BAUHINIAE E. & E. n. sp.

On leaves of *Bauhinia divaricata* L. Port Morant, Jamaica. Dec. 1890.

Mycelium forming thin, white, scattered, indefinitely limited patches on the under side of the leaf. Fertile hyphae cespitose, hyaline, 15–25 × 3 μ, roughened, and often toothed above, with the apex mostly truncate. Conidia fusoid, continuous or uniseptate, 12–15 × 2½–3 μ.

RAMULARIA TORVI E. & E. n. sp.

On leaves of *Solanum torvum* Sw. Port Morant, Jamaica. Dec. 1890.

Hypophyllous, with an olivaceous mycelium, forming definite, subconfluent dark-colored patches, giving the leaf a mottled and clouded appearance, but without any spots, except that the upper surface of the leaf opposite becomes yellowish brown. Fertile hyphae branched, 15–35 × 3 μ, smoky-hyaline, somewhat roughened or distinctly toothed above, continuous. Conidia terminal or lateral, ovate, continuous, 5–7 × 2–2½ μ, smoky-hyaline.

Varies from typical *Ramularia* in its dark-colored mycelium, which gives it the aspect of *Cercospora*.

CERCOSPORA PIPERIS E. & E. n. sp.

On leaves of *Piper hispidum* Sw. Port Morant, Jamaica. Dec. 1890.

Hypophyllous, forming suborbicular, dark-colored patches 3–5 mm. across, not on any spots, though the upper surface of the leaf, opposite the patches below, is blotched with dark-colored, indefinite spots. Hyphae cespitose, olivaceous, continuous or faintly septate, 35–40 × 4–5 μ, spreading and subundulate, but not strongly toothed or bent above. Conidia faintly brownish, cylindrical, nucleate, becoming faintly 3- or more-septate, 35–60 × 3 μ.

CERCOSPORA TURNERAE E. & E. n. sp.

On leaves of *Turnera ulmifolia* L. Nassau.

Spots epiphyllous, whitish, indefinite; border brown. Hyphae hypophyllous, tufts effused, forming subindefinite patches 3–4 mm. across, the part of the leaf occupied by the fungus a little paler, but there are no definite spots. Hyphae tufted, brown, undulate, faintly nucleate, continuous or sparingly septate, 60–90 × 4 μ. Conidia slender, brownish, faintly 1–3-septate, straight, attenuated above or the shorter ones cylindrical, 60–90 × 3–4 μ.

CERCOSPORA STACHYTARPHETAE E. & E. n. sp.

On leaves of *Stachytarpheta Jamaicensis* Vahl. Nassau. Nov. 1890.

Spots small, scattered, round, white, with a dark margin, 1–2 mm. diam. Hyphae epiphyllous, cespitose, 40–60 × 4 μ, pale brown, spreading, undulate, and subgeniculate above, continuous, not effused. Conidia cylindrical, smoky-hyaline, obtuse, 5–9-septate, 50–65 × 4–5 μ.

CERCOSPORA CALOTROPIDIS E. & E. n. sp.

On *Calotropis procera* (Ait.) R. Br. Fortune Island. Nov. 1890.

Spots ½–1 cm. diam., dirty brown, with the margin darker. Hyphae not abundant, tufted or spreading, pale, continuous, 15–30 × 3 μ, subundulate and nearly entire. Conidia cylindrical, yellowish-hyaline, 30–40 × 3 μ, nearly straight. The tufts of hyphae are thickly scattered over the spots on both sides of the leaf, and are very minute so as to be seen with difficulty without the lens.

PERONOSPORACEAE.

(MR. J. B. ELLIS.)

CYSTOPUS CANDIDUS (Pers.) Lev.

On a mustard (*Cakile maritima* Scop?). Nassau.

CYSTOPUS CONVOLVULACEARUM Speg.

On *Ipomoea Pes-caprae* (L.) Sweet. Grand Cayman.